

WHAT IS CLAIMED IS:

1. A stent-graft comprising:
a stent member having an inner surface and an outer surface;
a generally tubular graft member; and
a ribbon covering only a portion of at least one of the inner and outer surfaces of said member and securing the stent member and graft member to one another.

2. The stent-graft of claim 1 wherein said stent member comprises a tubular member.

3. The stent-graft of claim 2 wherein said stent member comprises multiple tubular members.

4. The stent-graft of claim 1 wherein said stent member comprises a first member having undulations and being arranged in a helical configuration with multiple turns.

5. The stent-graft of claim 4 wherein said ribbon is arranged in a helical configuration with multiple turns, each turn being spaced from an adjacent turn.

6. The stent-graft of claim 5 wherein said spacing between said turns is uniform.

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8. The stent-graft of claim 5 wherein said ribbon is interwoven into at least one of said undulations.

9. The stent-graft of claim 5 further including a linking member threaded between adjacent turns to maintain undulations in adjacent turns generally in-phase with one another.

10. The stent-graft of claim 9 wherein a number of said undulations are configured to permit therein unrestrained movement of an undulation generally in-phase therewith.

11. The stent-graft of claim 5 wherein a group of said undulations forms a sinusoidal curve.

12. The stent-graft of claim 5 wherein said ribbon has a width less than or equal to about two-thirds the average amplitude, measured peak-to-peak, of one of said undulations.

13. The stent-graft of claim 12 wherein said ribbon has a width less than or equal to about three-fourths

the average amplitude, measured peak-to-peak, of one of said undulations.

14. The stent-graft of claim 1 wherein said graft member has an average thickness of less than or equal to about 0.006 inch.

15. The stent-graft of claim 14 wherein said ribbon has an average thickness of less than or equal to about 0.005 inch.

16. The stent-graft of claim 1 wherein said graft member comprises porous expanded polytetrafluoroethylene.

17. The stent-graft of claim 16 wherein said ribbon comprises porous expanded polytetrafluorethylene.

18. The stent-graft of claim 1 wherein said graft member comprises radiopaque fibers.

19. The stent-graft of claim 1 wherein said stent member comprises nitinol.

20. The stent-graft of claim 1 wherein said ribbon is adhesively bonded to said graft member.

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24. The stent-graft of claim 22 wherein said ribbon has a generally flat portion that faces said graft member.

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25. The stent-graft of claim 22 wherein said
stent member is tubular, said stent and graft members are
generally coaxial, and said graft member is disposed in said
stent member.

26. A stent-graft comprising:

a stent member having an inner surface and an
outer surface, said stent member including a first member
and a second member, said first member being arranged in a
helical configuration with multiple helical turns, said
second member coupling adjacent helical turns;

a generally tubular graft member having an
inner surface and an outer surface, one of said stent and
graft members surrounding at least a portion of the other,
and

a coupling member coupling less than entirely
one of said inner and outer surfaces of said graft member to
said stent member.

27. The stent-graft of claim 26 wherein said
first member includes multiple undulations, each having an
apex, said coupling member is helically arranged and spaced
from said apexes to form therewith respective openings, said
apexes being configured to permit unrestrained movement of
said second member within said openings.

a generally tubular stent member having inner

and outer circumferences, said stent member including a first member and second member, said first member being arranged, in a helical configuration with multiple helical turns and having multiple undulations, each undulation having an apex, said second member being threaded through adjacent apexes in adjacent turns to maintain undulations in adjacent turns generally in-phase with one another;

a generally flat ribbon helically arranged and disposed to contact at least one of said inner and outer circumferences of said stent member and forming multiple windings spaced from one another; and

a generally tubular graft member disposed within said stent member portions of which are secured to said ribbon.

29. The stent-graft of claim 28 wherein said helically wound ribbon is generally spaced from said apexes and forms therewith respective openings, said apexes being configured to permit unrestrained movement of said second member within said openings.

30. A method of deploying a stent-graft comprising the steps of:

3 placing a first end of a variable length
stent-graft having an inner graft member, an outer,
helically wound stent coupled to said graft member by a
6 helically wound ribbon with spaced apart turns, at a first
site in a mammal; moving the second end of the stent-graft
toward a second site in a mammal; lengthening the stent-
9 graft if the second end does not reach the second site; and
shortening of the stent-graft if the second
end extends beyond the second site.

31. A process for making a stent graft comprising:

3 (a) placing a graft around a mandrel;
(b) positioning a stent having undulations
around said graft; and
6 (c) covering a portion of said stent and
graft with a coupling member having a flat surface, to form
a stent-graft assembly.

32. The process according to claim 31 further comprising the step of:

3 (a1) prior to step (a), placing a cushioning
layer around the mandrel.

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33. The process according to claim 31, wherein said covering step comprises helically wrapping the coupling member around the stent whereby adjacent turns of the helically wrapper coupling member are spaced from one another.

34. The process according to claim 32, wherein said covering step comprises helically wrapping the coupling member around the stent whereby adjacent turns of the helically wrapper coupling member are spaced from one another.

35. The process according to claim 32 wherein the coupling member is bonded to an outer surface of the graft.

36. The process according to claim 31 further comprising the step of:

(d) placing a sheath around the assembly of step (c) to form a compressed assembly.

37. The process according to claim 35 further comprising the step of:

(e) heating the tensioned assembly of step (d) to bond the coupling member to the graft.

38. The process according to claim 34 further comprising:

3 (d) placing a tubular sheath having a longitudinal slit around the assembly of step (c); and

6 (e) helically wrapping a film around the sheath to compress the assembly.

39. The processing according to claim 36 wherein the sheath includes a helical wrapping of PTFE film.

40. The stent-graft of claim 16 wherein one side of said ribbon has a coating of a fluorinated ethylene propylene polymer.

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